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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/463,961	05/25/00	IKEDA	H 0160-0193-0-

IM52/0619

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EXAMINER	
VANOY, T	
ART UNIT	PAPER NUMBER
1754	6

DATE MAILED: 06/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09-463,961	IKEDA et al.
Examiner	**Group Art Unit**
VANOY	1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disp siti n of Claims

☒ Claim(s) 1 – 8 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1 – 8 is/are rejected.

☐ Claim(s) 1 – 4, 6 AND 8 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. § 119 (a)-(d)

☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☒ Notice of Reference(s) Cited, PTO-892

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other _____

Office Action Summary

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The following references from the Applicants' Search Report are made of record: Japan Pat. Doc. No. 7-148,414 A; Japan Pat. Doc. No. 53-22,568 B; Japan Pat. Doc. No. 62-125,827 A; Japan Pat. Doc. No. 8-57,254 A; Japan Pat. Doc. No. 8-309,147 A; Japan Pat. Doc. No. 51-44,744 and Japan Pat. Doc. No. 3-242,215 A.

Specification

a) The abstract is objected to because it does not identify the "posterior stage", or its relation to the gas-liquid contact device (7) or packed column (11). Intuitively, it would seem that the "posterior stage" would be either gas-liquid contact device (7) or the packed column (11), but the abstract does not point this out.

Claim Objections

a) In claim 1 line 3, "equipped" should be replaced with "providing".

b) In claim 1 line 7, "an" should be replaced with "said".

c) The first step of claim 1 is objected to for being unnecessary and redundant. There does not appear to be any need to recite that the stirring tank comprises the

motor; the stirring shaft and stirring blade, since it is clearly understood that the "stirring" set forth in the 2nd step would already use these devices for effecting the stirring. It is suggested to cancel lines 3-5 in claim 1.

For the same reason, it is also suggested to cancel claim 6 because it is clearly understood that some kind of gas transfer device would be required to transfer the gas from one component of the apparatus to another.

d) In claims 2, 3, 4 line 2 of each claim, antecedent basis requires that "removal" be replaced with "further removing".

e) In claim 8, it is suggested to replace the European style "characterized in that" phrase with "wherein the improvement comprises" or "wherein the improvement consists essentially of", consistent with standard U. S. patent practice.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person "having ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicants' description of the prior art set forth on pg. 1 lines 9 et seq. in their specification and pgs. 2 and 3 in the Gas Purification text by Kohl et al., the combination taken together in view of Japan Pat. Doc. No. 62-125,827 A.

The Applicants describe the prior art method for treating exhaust gas contaminated with BCl_3, etc. . . from semiconductor manufacturing operations with a wet type apparatus employing a chemical liquid (please see pg. 1 lines 9-15 and lines 21-24 in the specification). The Applicants further note that ordinary wet-type apparatuses suffer from blocking (i. e. clogging) due to the accumulation of solid reaction products (such as B_2O_3) (please see pg. 2 lines 23-26 in the Applicants' specification). Pgs. 2

and 3 in the Gas Purification text by Kohl et al. further describe these conventional "packed towers" (please see pg. 2, 5th full paragraph in the Gas Purification text) and "spray contactor" (please see pg. 3, 1st full paragraph in the Gas Purification text) for removing contaminants out of exhaust gas via transfer of the substance from the gaseous to the liquid phase through the phase boundary. Also note that the description of the "spray contactor" sets forth that it is useful for the removal of HF and SiF_4 out of exhaust gas (in a manner suggesting their utility for scrubbing the exhaust gas from semiconductor manufacturing operations).

The Applicants' description of the prior art set forth on pgs. 1 line 9 et seq. in their specification and description of the prior art "packed towers" and "spray contactors" set forth on pgs. 2 and 3 in the Gas Purification text is submitted to teach all and/or render obvious all of the Applicants' claimed invention, *but for* the Applicants' preliminary step of passing the exhaust through the aeration stirring tank.

The English abstract of Japan Pat. Doc. No. 62-125,827 A discusses and illustrates what appears to be the same aeration stirring tank for treating what appears to be the same BCl_3 contaminated exhaust gas from a semiconductor manufacturing operation by injecting the BCl_3 contaminated gas into either water or an alkali aqueous solution within the aeration stirring tank under conditions of stirring thereby hydrolyzing the BCl_3 gas into B_2O_3 solids (which is discharged out of the stirring tank) to produce a gas containing a diminished quantity of BCl_3 and which is also (evidently) free from B_2O_3 solids.

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the prior art wet-type processes and apparatuses for treating the off-gas from semiconductor manufacturing operations described on pg. 1 lines 9 et seq. in the Applicants' specification *by including* the preliminary step of treating the exhaust gas with the aeration stirring tank taught in the English abstract of Japan Pat. Doc. No. 62-125,827 A as well as the Applicants' claims, *because* of the expected advantage of resolving the B_2O_3 clogging problems that the Applicants submit on pg. 2 lines 23-26 in the specification plague such prior art wet-type processes *by using* the aeration stirring tank of Japan Pat. Doc. No. 62-125,827 A, which is taught to not only remove the BCl_3 out of the gas but also to discharge the resulting B_2O_3 solids out of the system.

The following references, which are indicative of the state of the art, are made of record:

U. S. Pat. 6,183,720 B1 disclosing a process and apparatus for purifying gas (please see feature 201 illustrated in Fig. 5), and

U. S. Pat. 4,990,317 disclosing a process for removing hydrochloric acid out of gas.

Any inquiry concerning this communication should be directed to Timothy C. Vanoy at telephone number 703-308-2540.

Timothy Vanoy/tv Timothy Vanoy

June 15, 2001 Patent Examiner

Art Unit 1754